

# Educational Course Attendance Verification

Course Title/Name: **CODE UPDATE**

City Course was held in:  
**MILWAUKEE**

Course Password:  
**????**

Course ID#:  
**6528**

Course Date:  
**02-17-05**


List the Name of Each Credential Held by  
attendee

**MP & JP, MPRS, JPRS,  
UDC PLBG INSP.,**

Hours of  
Credit

**3**

Credential #:



# **Code UPDATE**

## **Comm 82.36+**

### **Exp. Eff. Date: 12/1/04**

- **Uniform statewide**
- **Flexible**
- **Performance/Prescriptive**



## **Problems & Issues**

- Antiquated Comm 82.36
- Creation of NR 151
- Stormwater runoff pollution
- Uninformed industry

## **Solutions**

- Revise Comm 82.36 +
- Educate, educate, educate

# Definitions - Comm 81

## Conveyance system 81.01 (62s)

**A portion of a drain system that consists of pipes that transport water without detention.**



# Definitions - Comm 81

## Detention - 81.01 (70m)

**The collection and temporary storage of water for subsequent gradual discharge.**



# Definitions - Comm 81

## Infiltration component - 81.01 (133s)

A device or method that is intended to promote the assimilation of water into in situ soil.



# Definitions - Comm 81

## Irrigation - 81.01 (136s)

**The application of water to the root zone of plants or plantings.**



# Definitions - Comm 81



**Peak flow, stormwater**

**- 81.01 (171e)**

**The largest anticipated flow  
from a given storm event.**



# Definitions - Comm 81

## Pre-development

- 81.01 (186s)

**The site conditions that existed prior to land disturbance for construction.**

# Definitions - Comm 81



10-year, 24-hour storm

- 81.01 (256e)

A specific rain storm event .



# Comm 82.36 Revisions

- **Allow systems to comply with NR 151**
  - 80% reduction in SS
  - Release at 2-year storm at pre-development 2-year storm rate
  - Infiltrate 60-90% of average annual rainfall
  - (with many exemptions, exclusions and prohibitions)



# Storm Revisions 82.36 & 82.365



# Comm 82.36 Revisions

- **Require plumbing systems to protect the safety and health of Wisconsin citizens, and**
- **Protect the waters of the state.**
  - **82.015 Purpose**



Comm  
82.36 Revisions

- **Upstream of detention - min. 10 yr, 24-hr storm**
- **Downstream of detention - Anticipated flows & volumes.**




## Discharge, Dispersal, Use Comm 82.36 (4)

- **Discharge points per 82.38**
- **Stormwater gravity drains may not combine with clearwater system prior to the storm building drain, except when the clearwater drain is protected by a check valve.**



## Comm 82.36 (5)

- **Input calculations - Flow**
    - Area divided by X sq ft/gpm
    - Rational method  $Q = CIA$
    - Engineering Analysis
  - **Input calculations - Volume**
    - Engineering design w/ minimum 2-yr, 24 hr event and 100-yr, 24 hr storm with a Type II Distribution.
  - **Additional inputs based on anticipated flows**
- 



## Comm 82.36 (6) Tables

- **82.36-1 PVC, ASTM D1785, D2665, F891 & ABS, ASTM D1527, D2661, F628**
- **82.36-2 PCV, ASTM D3034**
- **82.36-3 Cast Iron, ASTM A74 & A888**
- **82.36-4 Concrete, ASTM C76 & C14**
- **82.36-5 Elliptical Reinforced Concrete pipe**

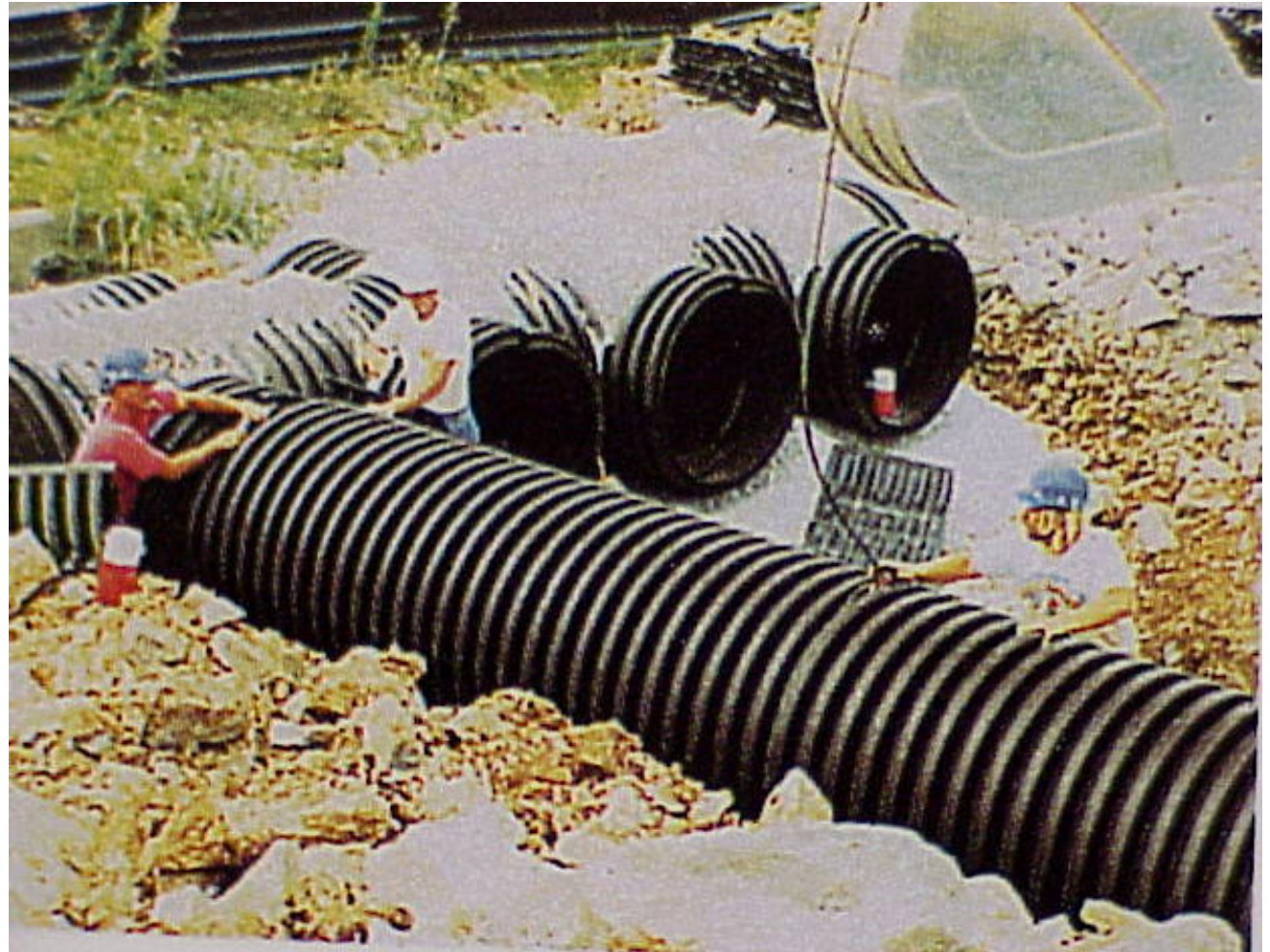


## Comm 82.36 (6)

- **Vertical conductor may not be smaller than the largest horizontal branch discharging into it.**
- **Underground, gravity storm min. Dia. 3-inch.**
- **Velocity = 1ft/sec flowing full**
- **Fittings comply with 82.30 (8) & (9)**
- **Except, 1st 90 downstream of roof drain - horiz. To vert.**

## Comm 82.36 (6)

**Dry detention systems designed and installed to drain within 72 hours.**





## Comm 82.36 (6)

**Detention on paved surfaces or parking lots shall not exceed 6 inches depth, unless prohibited by local ordinance.**

**Ground surface ponding shall drain within 24 hours after a storm event.**

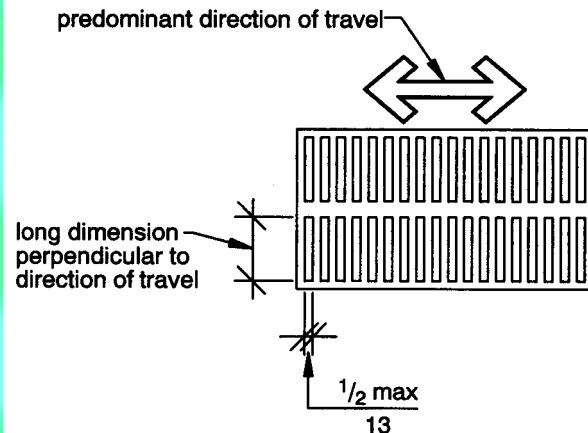
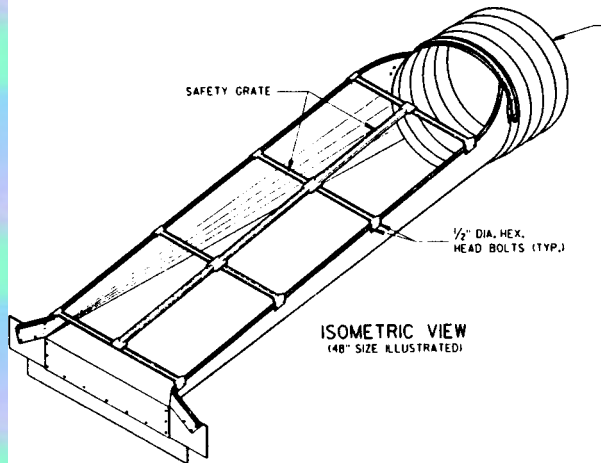




## Comm 82.36 (7)

- **Subsoil drains to area drain, manhole or storm sewer, trapped receptor or sump with pump**
- **Foundation drains subject to high groundwater need backwater valve or sump with pump**
- **Backwater valves accessible for maintenance**
- **Through or under a building**

# Comm 82.36 (9) Inlets



Grate openings shall not permit:

- Vertical piping: the passage of 1/2" sphere for ADA path
- Vertical piping: entrapment of bicycles, wheelchairs or pedestrians
- Horizontal piping: the passage of a 6" sphere.

## 82.36 (10) Roof Drains



- **Strainers 4" above deck**
- **Strainer sizing**
  - 1.5 X area
  - 2 X area (flat)
- **Overflow systems**
  - May not connect to the primary drain system
  - Discharge as per 82.38



## 82.36 (12) Traps & Vents

- **More than one inlet per trap**
- **Foundation drain to sewer requires trap**



# Comm 82.36 Revisions

**STORM DRAIN  
MAINTENANCE  
PROGRAMS TO FIT  
EVERY SITUATION.**

**Let DPS help you:**

- Comply with City, State and Federal EPA stormwater runoff mandates.
- Avoid costly fines.
- Clean up the environment.

**An operation and maintenance plan shall be implemented for all stormwater systems for disturbed areas of one or more acres and installed after December 1, 2004.**

A close-up photograph of a mosquito on human skin. The mosquito is positioned in the center of the frame, with its long, thin legs and wings clearly visible. The skin is a warm, reddish-brown color, and the texture of the skin is visible. The mosquito's body is dark, and its wings are spread out. The background is a soft, out-of-focus view of the skin.

Comm 82.36 Revisions

**Maintenance plan must address**

**vector control issues**

# Comm 82.365 Revisions

**Stormwater & clearwater  
infiltration systems**



# Comm 82.365 Revisions





## 82.365 Revisions

- **Site & Soil Evaluation**
  - CST or Soil Scientist required
- **Suitable soil**
  - 3 feet of vfs, lvfs, cosl or finer
  - 5 feet of vfs, lcos, cosl or finer
  - 1 foot finer material than coarse sand or finer for roof runoff or where pretreatment is equivalent



## Comm 82.365 (3) 82.365-2

<b>COS or coarser</b>	<b>3.6 in/hr</b>
<b>LC sand &amp; sand</b>	<b>3.6 in/hr</b>
<b>Loamy sand</b>	<b>1.63</b>
<b>Sandy loam</b>	<b>.5</b>
<b>Loam</b>	<b>.24</b>
<b>Silt loam</b>	<b>.13</b>
<b>Sandy clay loam</b>	<b>.11</b>
<b>Clay loam</b>	<b>.03</b>
<b>Silty clay loam</b>	<b>.04</b>
<b>Sandy clay</b>	<b>.04</b>
<b>Silty clay</b>	<b>.07</b>
<b>Clay</b>	<b>.07</b>



## Comm 82.365 (3) 82.365-3

<b>Ratio of Design Infiltration Rates</b>	<b>Correction Factor</b>
<b>1</b>	<b>2.5</b>
<b>1.1 to 4.0</b>	<b>3.5</b>
<b>4.1 to 8.0</b>	<b>4.5</b>
<b>8.1 to 16.0</b>	<b>6.5</b>
<b>16.1 or greater</b>	<b>8.5</b>

Infiltration rate from infiltrative surface = 1.63

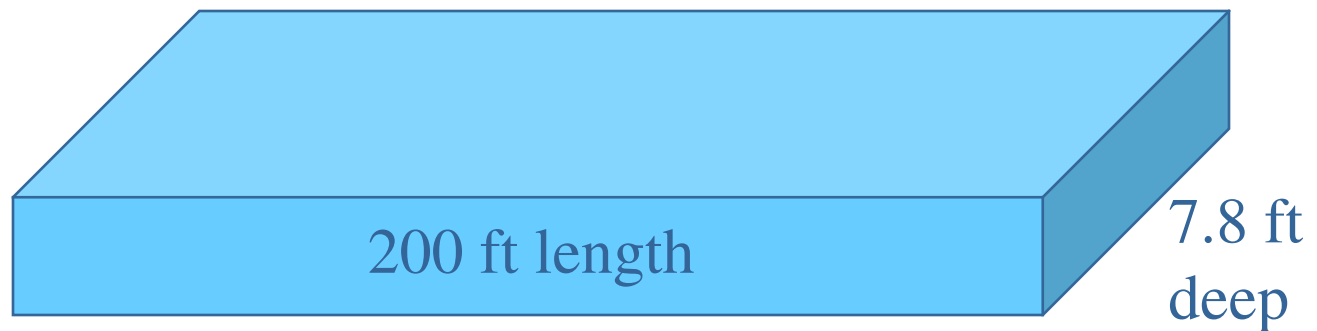
Infiltration rate from least permeable horizon = .24

$1.63 / .24 = 6.79$  or 6.8

6.8 from table = 4.5 correction factor

Measured infiltration rate =  $6 \text{ in/hr} / 4.5 = 1.3 \text{ in/hr}$

## 82.365 Calculating Infil. Area



Maximum drain time = 72 hours

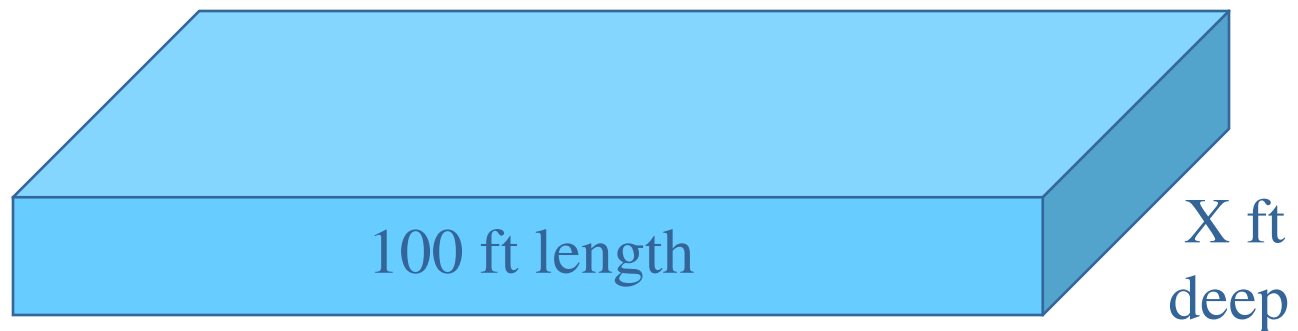
10,000 cubic feet of water to infiltrate

Design infiltration rate = 1.3 in/hr

$1.3 \times 72 = 93.6$  inches = 7.8 ft deep

$200 \times 7.8 \times x = 10,000$  or width is 6.5 ft minimum

## 82.365 Calculating Infil. Area



Maximum drain time = 72 hours

20,000 cubic feet of water to infiltrate

Design infiltration rate = 2 in/hr

\_\_\_ X 72 = \_\_\_ inches = \_\_\_ ft deep

\_\_\_ X \_\_\_ X \_\_\_ = 20,000 or width is \_\_\_ ft minimum



## 82.365 Table 82.365-4

<b>Building</b>	<b>10 ft</b>
<b>Holding tank, storm collection tank</b>	<b>10 ft</b>
<b>POWTS dispersal comp.</b>	<b>5 ft</b>
<b>POWTS holding or treatment component</b>	<b>10 ft</b>
<b>Property line</b>	<b>5 ft</b>
<b>Swimming pool, in grd.</b>	<b>15 ft</b>




## 82.365 (4) Installation

- **Perpendicular to the slope**
- **Level**
- **No installation on frozen soil**
- **Snow cover removed**
- **In situ soil must be dry enough to allow installation**



## Comm 82.365 (5) O & M



- **No substance discharged that could exceed groundwater standards.**
  - **Exception for chlorides only for preventive action limit.**
  - **Deleterious substances**
- 



## 82.38-1 Discharge Points

### **Stormwater, groundwater & clearwater**

See note “g” under Municipal Sanitary Sewer

### **Wastewater from water treatment devices**

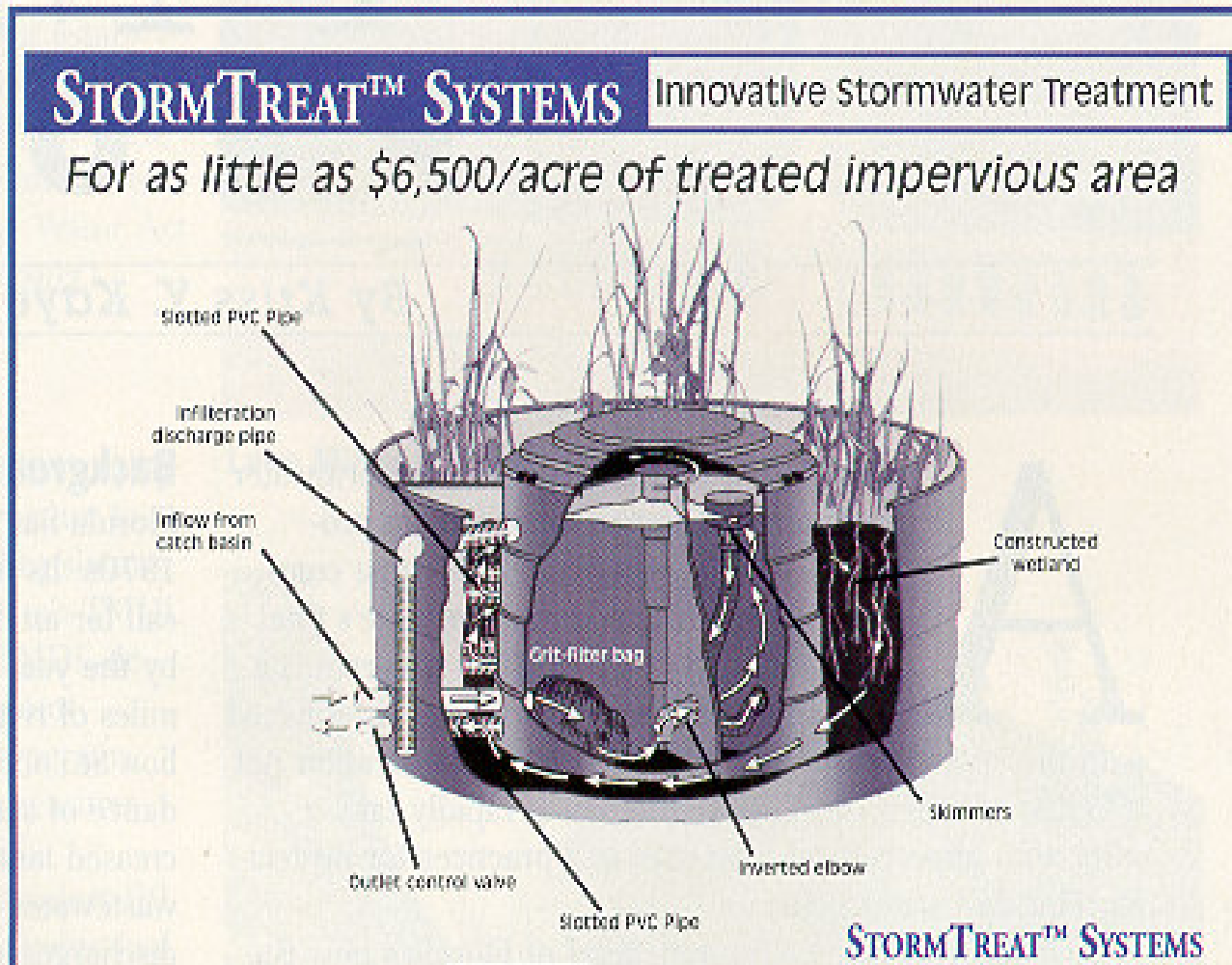
- POWTS, San. Sewer, Ground Surface, Combined sewer, Subsurface dispersal
  - POWTS must be designed for water
  - Ground surface so as not to create nuisance
  - Subsurface dispersal with plan review for public buildings



## 82.70-1 Treatment Standards

<b>Subsurface infiltration &amp; irrigation using stormwater as the source</b>	<b>&lt; 15 mg/L oil &amp; grease &lt; 60 mg/L TSS</b>
<b>Surface or spray irrigation using stormwater &amp; clearwater as source</b>	<b>&lt; 10 mg/L BOD5 &lt; 5 mg/L TSS</b>
<b>Vehicle washing, toilet &amp; urinal flushing, etc.</b>	<b>pH 6-9 &lt; 10 mg/L BOD5 &lt; 5 mg/L TSS No detect. fecals &gt; 1 and &lt; 10 mg/L Cl</b>

# Product Approval Required





## 84.30 (6) Leaching chambers





## 85.10 Qualifications

“A soil evaluation for the treatment or dispersal of stormwater regulated under ch. Comm 82 shall be performed by an individual who is either a certified soil tester or one who holds a professional soil scientist license under ch. GHSS 4.”



# Questions?



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